

NEW TAPE DUPLICATING SYSTEM

SERIES 235

ACCEPTS UP TO 10 SLAVES

SOLID STATE ELECTRONICS

MODULAR PLUG-IN DESIGN

VIKING now introduces a tape duplicating system of exceptional flexibility with reliable industrial tape transports and solid state modular plug-in electronics.

Dependable equipment, designed for practical operating conditions, the Viking series 235 is modestly priced. Educational, broadcasting and commercial tape duplicating is now economically feasible.

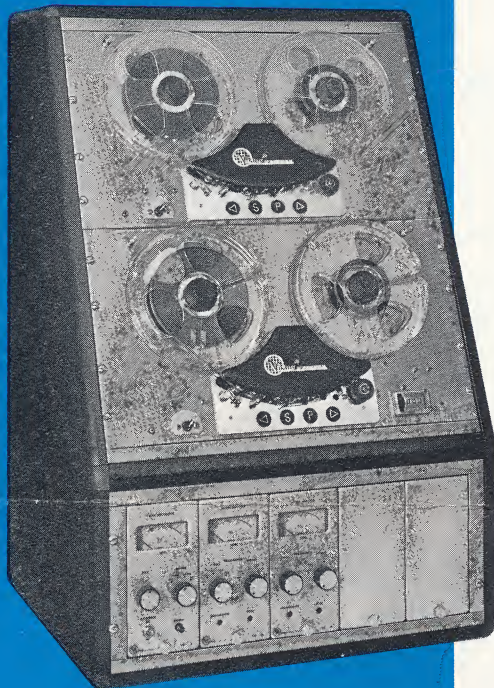
BASIC TWO TRACK, TWO CHANNEL SYSTEM,

consisting of one master and one slave transport, complete electronics, connecting cables and table top console. **Only \$1,995.00**

THREE SLAVE DUPLICATING SYSTEM,

as above but with three slaves and two consoles **Only \$2,695.00**

FULL, HALF AND QUARTER TRACK, AND ONE, TWO OR FOUR CHANNEL TAPE DUPLICATING SYSTEMS AVAILABLE.



**COMPLETE BASIC
TWO CHANNEL SYSTEM**

SIMPLE, CONVENIENT OPERATION

The Viking 235 tape duplicating system is designed so a non-technical user can operate the system after a few minutes of familiarization with the equipment. A single AC power switch turns the entire system on and off. Tape is easily loaded in the same manner on master and slaves. The entire system is operated from the master transport push-buttons when recording/duplicating. The system automatically stops at the end of a duplication. All tracks of a master tape can be simultaneously copied in one pass.

Complete operation instructions are included with each system.

PRODUCTION CAPACITY

These are conservative figures based on 15 ips operation including time for re-loading of tape on slaves.

SLAVES IN SYSTEM	1200' COPIES PER HOUR	1200' COPIES PER 8 HOUR DAY	1200' COPIES PER 5 DAY WEEK
1	3	24	120
2	6	48	240
3	9	72	360
4	12	96	480
5	15	120	600
6	18	144	720
7	21	168	840
8	24	192	960
9	27	216	1080
10	30	240	1200



OF MINNEAPOLIS®
9600 Aldrich Ave. S. Minneapolis, Minnesota, 55420

GENERAL DESCRIPTION

The Viking tape duplicating system will accommodate up to 10 slaves.

Master and slave transports are of heavy duty industrial design with two speed hysteresis synchronous capstan drive, separate reel drive motors and differential braking. Photo-electric run-out and speed selector switch are included on all transports. The master unit comes with digital counter. All tape motions on the 235 system are push-button controlled. When recording, the entire system is operated from the master console for simultaneous start, stop and record with controlled attack and decay time constants for smooth click-free duplicating. The system can also be remotely controlled.

Interlocking features stop the entire system should the master tape break. However, should a tape on a slave unit break, only this slave becomes inoperative. Long life, hyperbolic heads without pressure pads, are mounted on interchangeable head blocks on master and slaves. Master and slave front panels are stainless steel, standard EIA rack mount size.

Solid state circuitry on etched, glass epoxy plug-in boards provides exceptionally clean amplifier layout with low noise silicon planar plug-in transistors. A built-in, regulated power supply provides extremely stable operation not affected by line voltage fluctuation. The conservative design permits adding up to 10 slaves per system without signal drop.

The bias oscillator provides 260 KC bias for clean recording of 40 KC and beyond. Illuminated ASA standard VU meters are included. Front panel selection for exact NAB and EIA standard equalization to copy tapes from 1-7/8 to 15 IPS provides optimum dynamic range for all speeds. Screw driver adjustment permits trimming of master level and playback equalization. Auxiliary inputs are provided for multiple recording on slaves from tuner, phono, etc.

THE "BUILDING BLOCK PRINCIPLE"

The Viking tape duplicating series 235 is designed on the modular plug-in concept for flexible versatility. Each component is matched to the system. Components may be added one to another in a "building block" fashion to expand the system.

Generally, a tape duplicator is used to make exact duplicates of a master tape. However, a careful study of the components available in the Viking 235 series will reveal that many combinations are possible. Systems can be virtually customized for specific applications. It is possible, for example, to make quarter track copies from a half track master tape, or 7-1/2 ips copies from a 15 ips master, etc., etc. A multiple slave system thus can offer numerous application possibilities.

PRODUCE COPIES OF ANY TAPE SPEED

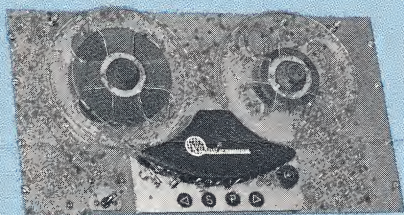
(Figures shown represent tape speed in inches per second)

ORIGINAL MASTER TAPE	PLAY ON MASTER TRANSPORT	RECORD ON SLAVE TRANSPORT	TAPE SPEED OF COPY
15	15	15	15
15	15	7-1/2	7-1/2
15	15	3-3/4*	3-3/4
15	15	1-7/8*	1-7/8
7-1/2	15	15	7-1/2
7-1/2	7-1/2	15	15
7-1/2	15	7-1/2	3-3/4
7-1/2	15	3-3/4*	1-7/8
3-3/4	15	15	3-3/4
3-3/4	15	7-1/2	1-7/8
3-3/4	7-1/2	15	7-1/2
1-7/8	15	15	1-7/8
1-7/8	7-1/2	15	3-3/4

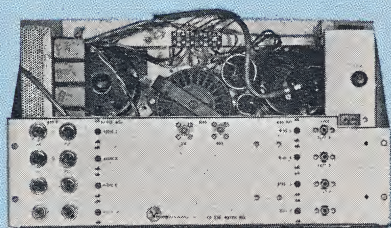
*Requires slaves with optional, slow speeds or standard 7-1/2 to 15 ips systems can be used by making intermediate masters.



MASTER TRANSPORT



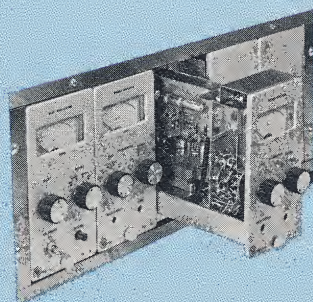
SLAVE TRANSPORT



4 CHANNEL SLAVE-REAR PANEL



PUSH BUTTONS



SOLID STATE,
PLUG-IN MODULES

DESCRIPTION OF COMPONENTS IN THE VIKING 235 TAPE DUPLICATING SYSTEM

TRANSPORTS

A letter preceding the "235" identifies the transport unit:

M = Master transport. S = Slave transport.

Two digits following the "235" designate the tracks and channels respectively.

235 SERIES TRANSPORTS

MASTERS	SLAVES	TRACKS AND CHANNELS
M235-11	S235-11	Full track, One channel
M235-21	S235-21	Half track, One channel
M235-22	S235-22	Half track, Two channels
M235-42	S235-42	Quarter track, Two channels
M235-44	S235-44	Quarter track, Four channels

All transports are two speeds: 7-1/2 and 15 ips. On specific request transports with 1-7/8 and 3-3/4 ips, or 3-3/4 and 7-1/2 ips are also available.

ELECTRONICS

All electronic plug-in modules fit into a basic amplifier chassis.

AMPLIFIER CHASSIS, identified as TDC, provides five stations to accommodate electronic plug-in modules. On the rear panel, the TDC is equipped with receptacles for the necessary connections including auxiliary inputs to record on slaves from tuner, phono, etc. The amplifier chassis is available as TDC-2 - wired for two channels, or as TDC-4 - wired for four channels. Blank front panels cover stations not used in the TDC. Only one TDC is required per complete system.

BIAS OSCILLATOR module, identified as TDB, features front panel master on-off switch, bias level control, selector switch for record mode, illuminated record push button and an illuminated meter for bias adjustment. Only one TDB is required per complete system.

SLAVE RECORD AMPLIFIER module, identified as TDA, contains front panel play and record equalization switches (to NAB and EIA standard), equalization and level screw-driver adjustments and illuminated VU meter. Only one TDA module is required for each channel per complete system.

TABLE TOP CONSOLES: Each console accepts two transports and one TDC. Thus, a basic system of one master and one slave transport and associated electronics are contained within a single table top console. The 2nd, 4th, 6th, 8th or 10th slave added to the basic system will require an additional console. Basic and additional consoles are uniform in height for operating and alignment convenience.

Console Dimensions: 32" high, 21" wide, 18" deep at base. The vertical front panel base accepts the TDC with plug-in modules and is 9 1/2" high. Transports are mounted above the TDC on a receding angle of 67° for operating convenience. The console is of black anodized aluminum with vented top and side panels and removable back. Blank filler panels are of stainless steel to match transports.



TDC-4 SHOWING ONE TDB,
FOUR TDA.



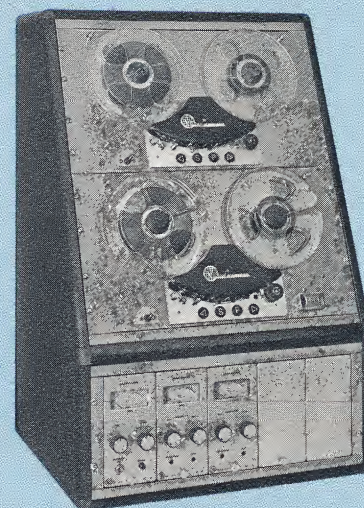
TDC-4 REAR PANEL



TDB
BIAS
OSCILLATOR
MODULE



TDA
SLAVE
RECORD
MODULE



BASIC SYSTEM



A COMPLETE 10 SLAVE 235 SYSTEM

SPECIFICATIONS

***FREQUENCY RESPONSE:** Meet or exceed $\pm 3\text{DB}$ 80 to 40,000 CPS at 15 IPS. $\pm 3\text{DB}$ 40 to 20,000 CPS at $7\frac{1}{2}$ IPS. $\pm 3\text{DB}$ 40 to 10,000 CPS at $3\frac{3}{4}$ IPS. $\pm 3\text{DB}$ 40 to 5,000 CPS at $1\frac{7}{8}$ IPS.

AUXILIARY INPUT SENSITIVITY: 300 MV, 50K OHMS impedance.

MONITOR OUTPUT: 1 Volt to 25,000 OHMS minimum load.

CROSSTALK REJECTION: Better than 50DB at all frequencies.

SIGNAL TO NOISE RATIO: Less than 3DB degradation from master tapes; 55DB peak S/N Ratio at $7\frac{1}{2}$ or 15 IPS.

ILLUMINATED METERS: One for bias adjustment. ASA standard VU meters for each program channel.

EQUALIZATION: Front panel switching. Standard NAB and EIA.

DISTORTION: Less than 1% THD at 1 KC at 0 VU at $7\frac{1}{2}$ or 15 IPS.

HEADS: Designed especially for duplicating purposes. Laminated, hyperbolic ground, no pressure pads required.

BIAS FREQUENCY: 260 KC.

TAPE SPEED: $7\frac{1}{2}$ and 15 IPS. Transports with $1\frac{7}{8}$ and $3\frac{3}{4}$ IPS or $3\frac{3}{4}$ and $7\frac{1}{2}$ IPS available on specific request.

LONG TERM SPEED REGULATION: 0.5%
CAPSTAN DRIVE: Flutter-filter multiple belt drive.

CAPSTAN FLYWHEEL: 2 lbs., dynamically balanced.

CAPSTAN AND REEL BEARING: Oil impregnated bronze, no lubrication required.

CAPSTAN DRIVE MOTOR: Two speed hysteresis synchronous.

SPOOLING MOTORS: Standard shaded 4 pole torque motors.

FLUTTER AND WOW: 0.17% RMS at 15 IPS. 0.2% RMS at 7.5 IPS.

BRAKE: Differential balanced braking, self energizing in the event of power failure.

CONTROL CIRCUITS: 24 Volt DC.

TRANSPORT CONTROLS: Push-button relay; Rewind, Stop, Play, Fast Forward.

REEL SIZE: 7 inches maximum.

FAST FORWARD: 1200 ft. reel, 45 seconds.

REWIND: 1200 ft. reel, 45 seconds.

COUNTER: Three digit decimal, resettable. On master transport only.

POWER REQUIREMENTS: 340 watts maximum for basic system at 105 to 130 VAC 50/60 cycle. Each additional slave 150 watts maximum. Also available for 210 to 260 VAC 50/60 cycle.

TRANSPORT FINISH: Stainless steel front panel.

CONSOLE DIMENSIONS: 32" high, 21" wide, 18" deep at base. Front panel base $9\frac{1}{2}$ " high, accepts TDC. Two transports mounted above TDC at 67° angle for operating convenience.

CONSOLE FINISH: Black anodized aluminum, vented top and side panels, removable back.

*Due to practical tape and head-gap limitations, the use of short wave lengths and maintenance of azimuth alignment, the high frequency response with full track heads is 25,000 cps ± 3 db at 15 ips; 14,000 cps ± 3 db at $7\frac{1}{2}$ ips; 7,000 cps ± 3 db at $3\frac{3}{4}$ ips and 3,500 cps at $1\frac{7}{8}$ ips.

PRICES

	Full Track	Half Track Single Channel	Half Track Two Channel	Quarter Track Two Channel	Quarter Track Four Channel
BASIC SYSTEM One Master & One Slave complete with electronics and console	\$1,850.00	\$1,800.00	\$1,995.00	\$1,995.00	\$2,600.00
ONE AND THREE SYSTEM One Master & Three Slaves complete with electronics in two consoles	\$2,650.00	\$2,575.00	\$2,695.00	\$2,695.00	\$3,475.00
PER ADDITIONAL SLAVE	\$395.00	\$375.00	\$375.00	\$375.00	\$425.00
PER ADDITIONAL CONSOLE (each holds two slaves)	\$70.00	\$70.00	\$70.00	\$70.00	\$70.00

ALL SYSTEMS CAN BE EXPANDED TO TEN SLAVES WITHOUT ADDITIONAL ELECTRONICS

Due to the flexibility concept built into the Viking 235 tape duplicating series, numerous combinations within a system are possible. Listing all of these would be unnecessarily complex. For complete price information on a system to your specifications, please write to Sales Dept., Viking of Minneapolis, Inc., 9600 Aldrich Avenue South, Minneapolis, Minnesota 55420.

Viking reserves the right to improve its products without incurring the obligation to incorporate these improvements in products already sold. Specifications and prices listed herein are subject to change without notice.



Viking OF MINNEAPOLIS®
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Cable Address:
VIKMIN

MONAURAL AND STEREOPHONIC RECORDERS, PLAYERS AND ACCESSORIES

Dear Sir:

We enclose literature on the Viking Series 235 Tape Duplicating System per your request.

Please take a few minutes from your busy schedule to read this material. We are confident you will find the Viking 235 System not only versatile but also very reasonably priced.

If your particular requirements call for more detailed information on our duplicating system, please describe the circumstances on your business letterhead and address to:

Customer Service Department
VIKING OF MINNEAPOLIS, INC.
9600 Aldrich Avenue South
Minneapolis, Minnesota 55420

We will endeavor to answer all specific questions and supply you with information on tape duplicating and applications.

Thank you for your interest in Viking equipment.

Yours truly,

VIKING OF MINNEAPOLIS, INC.

Earl Snader
Customer Service

ES:hc

Encl.